

WHAT IS CLAIMED IS:

1. A field changeable graphics card for use in a computing device, comprising:
 - a printed circuit board;
 - a plurality of mechanical keep-out zones defined on the printed circuit board, the keep out zones being adapted to accommodate a plurality of on-board components;
 - a card connector zone disposed along a first edge of the printed circuit board;
 - one or more support holes disposed proximate to a second edge of the printed circuit board, wherein the second edge is located opposite the first edge and the support holes are sized to receive supports adapted for maintaining the graphics card in a substantially parallel, spaced apart orientation relative to a motherboard,
 - wherein the field changeable graphics card resides in an independent, spaced-apart position relative to the motherboard.
2. The graphics card of claim 1, wherein the plurality of mechanical keep-out zones comprises:
 - a graphics processing unit zone located on a first face of the printed circuit board and disposed proximate to a center of the printed circuit board, the graphics processing unit zone sized to receive a graphics processing unit;
 - a first memory zone disposed between the graphics processing unit zone and the second edge of the printed circuit board, the first memory zone being sized to receive up to two pieces of memory; and
 - a second memory zone disposed between the graphics processing unit zone and a third edge of the printed circuit board, wherein the third edge is substantially perpendicular to the first and second edges and the second memory zone is sized to receive up to two pieces of memory.

3. The graphics card of claim 2, further comprising:
a plurality of mounting holes formed in the printed circuit board and sized to receive a plurality of fasteners for mounting a cooling system to the graphics card, wherein the plurality of mounting holes define a substantially square-shaped region that surrounds the graphics processing unit zone.
4. The graphics card of claim 3, wherein the substantially square-shaped region defined by the plurality of mounting holes overlaps at least one of the first and second memory zones.
5. The graphics card of claim 3, wherein a keep out zone is defined surrounding the support holes.
6. The graphics card of claim 3, wherein a keep out zone is defined surrounding the mounting holes.
7. The graphics card of claim 3, wherein a keep out zone is defined in the card connector zone.
8. The graphics card of claim 3, wherein the graphics processing unit zone is sized to receive a graphics processing unit of up to 35 mm x 35 mm in size.
9. The graphics card of claim 3, further comprising:

a third memory zone disposed on a second face of the printed circuit board and located proximate to the second edge of the printed circuit board, the third memory zone being sized to receive up to two pieces of memory; and

a fourth memory zone disposed on the second face of the printed circuit board and located proximate to the third edge of the printed circuit board, the fourth memory zone being sized to receive up to two pieces of memory.

10. The graphics card of claim 9, wherein the graphics processing unit zone is sized to receive a graphics processing unit of up to 35 mm x 35 mm in size.

11. The graphics card of claim 9, wherein the graphics processing unit zone is sized to receive a graphics processing unit of up to 40 mm x 40 mm in size.

12. The graphics card of claim 3, wherein a height that a surface mounted component may extend above the first face of the printed circuit board is no greater than approximately 3.5 mm.

13. The graphics card of claim 3, wherein a height that a surface mounted component may extend above a second face of the printed circuit board is no greater than approximately 1.2 mm.

14. The graphics card of claim 3, wherein a distance between the first surface of the printed circuit board and mounting plate supported by the plurality of mounting holes is no more than approximately 1.85 mm.

15. The graphics card of claim 3, wherein a distance between the first surface of the printed circuit board and a spreader plate coupled to the first memory zone is no greater than approximately 2.00 mm.
16. The graphics card of claim 3, wherein a distance between the first surface of the printed circuit board and a spreader plate coupled to the second memory zone is no greater than approximately 0.66 mm.
17. The graphics card of claim 3, wherein a height that a fastener may extend above the fastener holes is no greater than 3.5 mm.
18. The graphics card of claim 3, wherein a height that a cooling system component may extend above the first face of the printed circuit board is no greater than 2.64 mm.
19. The graphics card of claim 9, wherein a distance between the second surface of the printed circuit board and a spreader plate coupled to the third or fourth memory zone is no greater than approximately 0.66 mm.
20. The graphics card of claim 11, wherein a distance between the first surface of the printed circuit board and a spreader plate coupled to the first memory zone is no greater than approximately 0.66 mm.
21. A laptop computing device comprising
a motherboard adapted for receiving a central processing unit; and

a field changeable graphics card interfaced to the motherboard and residing in an independent, spaced-apart relation relative to the motherboard, the field changeable graphics card comprising:

a printed circuit board;

a plurality of mechanical keep-out zones defined on the printed circuit board, the keep out zones being adapted to accommodate a plurality of on-board components;

a card connector zone disposed along a first edge of the printed circuit board; and

one or more support holes disposed proximate to a second edge of the printed circuit board, wherein the second edge is located opposite the first edge and the support holes are sized to receive supports adapted for maintaining the graphics card in a substantially parallel, spaced apart orientation relative to a motherboard.

22. The laptop computing device of claim 21, wherein the plurality of mechanical keep-out zones comprises:

a graphics processing unit zone located on a first face of the printed circuit board and disposed proximate to a center of the printed circuit board, the graphics processing unit zone sized to receive a graphics processing unit;

a first memory zone disposed between the graphics processing unit zone and the second edge of the printed circuit board, the first memory zone being sized to receive up to two pieces of memory; and

a second memory zone disposed between the graphics processing unit zone and a third edge of the printed circuit board, wherein the third edge is substantially

perpendicular to the first and second edges and the second memory zone is sized to receive up to two pieces of memory.

23. The laptop computing device of claim 22, further comprising:

a plurality of mounting holes formed in the printed circuit board and sized to receive a plurality of fasteners for mounting a cooling system to the graphics card, wherein the plurality of mounting holes define a substantially square-shaped region that surrounds the graphics processing unit zone.

24. The laptop computing device of claim 23, wherein the substantially square-shaped region defined by the plurality of mounting holes overlaps at least one of the first and second memory zones.

25. The laptop computing device of claim 23, wherein a keep out zone is defined in the card connector zone.

26. The laptop computing device of claim 23, wherein a keep out zone is defined surrounding the mounting holes.

27. The laptop computing device of claim 23, wherein a keep out zone is defined in the card connector zone.

28. The laptop computing device of claim 23, wherein the graphics processing unit zone is sized to receive a graphics processing unit of up to 35 mm x 35 mm in size.

29. The laptop computing device of claim 23, further comprising:
- a third memory zone disposed on a second face of the printed circuit board and located proximate to the second edge of the printed circuit board, the third memory zone being sized to receive up to two pieces of memory; and
 - a fourth memory zone disposed on the second face of the printed circuit board and located proximate to the third edge of the printed circuit board, the fourth memory zone being sized to receive up to two pieces of memory.
30. The laptop computing device of claim 29, wherein the graphics processing unit zone is sized to receive a graphics processing unit of up to 35 mm x 35 mm in size.
31. The laptop computing device of claim 29, wherein the graphics processing unit zone is sized to receive a graphics processing unit of up to 40 mm x 40 mm in size.
32. A field changeable card for use in a computing device, comprising:
- a printed circuit board;
 - a plurality of mechanical keep-out zones defined on the printed circuit board, the keep out zones being adapted to accommodate a plurality of on-board components;
 - a card connector zone disposed along a first edge of the printed circuit board;
 - one or more support holes disposed proximate to a second edge of the printed circuit board, wherein the second edge is located opposite the first edge and the support holes are sized to receive supports adapted for maintaining the field changeable card in a substantially parallel, spaced apart orientation relative to a motherboard,
 - wherein the field changeable card resides in an independent, spaced-apart position relative to the motherboard.

33. The field-changeable card of claim 32, wherein the field changeable card is a graphics card comprising a graphics processing unit.

34. The field-changeable card of claim 32, wherein the field changeable card is an audio chip.